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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/223,274 12/30/98 LEE

C 06192.0057

022930 MM91/0914
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EXAMINER

CHOMTILURY, T

ART UNIT

PAPER NUMBER

2871
DATE MAILED:

09/14/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/223,274

Applicant(s)

LEE ET AL.

Examiner

Tarifur R Chowdhury

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5 and 8-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5 and 8-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Continued Prosecution Application

1. The request filed on 07/06/01 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/223,274 is acceptable and a CPA has been established. An action on the CPA follows.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 3-5 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimaki et al. (Fujimaki), PN 6,191,837 B1 in view of Susumu Kondo (Kondo), JP 3-69917.

4. Fujimaki discloses and shows in figure 1(b), a liquid crystal display, comprising:

- a first panel (1) having a first electrode (14) and a second electrode (15) that are separated from each other and generate electric field by applying voltage;
- a second panel (508) spaced from the first panel (1);
- a liquid crystal layer interposed between the first panel and the second panel, wherein the liquid crystal molecules are aligned substantially parallel to the first panel and the second panel; and
- a plurality of spacers dispersed in the liquid crystal layer (column 9, line 67- column 10, line 2).

Fujimaki does not explicitly disclose that the liquid crystal molecules are homogeneously or homeotropically aligned near the spacers. However, Kondo discloses in the abstract and shows in figures 1 and 2, that by forming spacers of a mixture composed of spacers whose surfaces have perpendicular (homeotropic) orientability, and spacers whose surface have horizontal (homogeneous/parallel) orientability, it is possible to obtain a display with uniform inter-substrate spacing and high display performance. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to substitute the spacers of Fujimaki with spacers that has homogeneous or homeotropic orientability, as taught by Kondo in order to obtain a display with high display performance.

Accordingly, claims 1 and 8 would have been obvious.

As to claims 3-5 and 9-11, Fujimaki discloses in column 8, lines 37-40 that the liquid crystal display also comprises a pair of polarizers attached to the outer surfaces of the first and second panels, wherein the polarizing directions of the polarizers are substantially perpendicular to each other.

5. Claims 1, 3-5 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimaki et al. (Fujimaki), PN 6,191,837 B1 in view of Shiyouchi Ogawa (Ogawa), JP 57-613.

Fujimaki discloses all the claimed limitations except that that the liquid crystal molecules are homogeneously or homeotropically aligned near the spacers. However, Ogawa discloses in the abstract that by disposing spacers applied with surface treatment between electrode plates it is possible to uniformly hold a spacing between electrode plates without causing orientation defects owing to the surface energy of spacers (refer to figures 2 and 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to substitute the spacers of Fujimaki with spacers that has homogeneous or homeotropic orientability, as taught by Ogawa in order to obtain a display that is capable of uniformly hold a spacing between electrode plates without causing orientation defects owing to surface energy.

Accordingly, claims 1, 3-5 and 8-11 would have been obvious.

6. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimaki in view of Kondo or Ogawa as applied to claims 1, 3-5 and 8-11 above, and further in view of Fukutani et al. (Fukutani), PN 5,594,572.

7. Only limitation lacking is that the spacers absorb ionic impurities and dissipate electrostatic charges. Further, it is disclosed in page 5 of the instant application that the spacers are "Lunapearl", which are manufactured by Kao, a Japanese company. Fukutani discloses in column 6, lines 33-67 the use of "Lunapearl" spacers manufactured by Kao for several reasons such as to improve gap uniformity and prevent gap irregularity. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to employ spacers such as "Lunapearl" that are manufactured by Kao for being conventional and to improve gap uniformity as well as prevent gap irregularity.

Accordingly, claim 12 would have been obvious.

Claims 13-15 would have been obvious for the same reason as discussed above regarding claims 9-11 above.

Response to Arguments

8. Applicant's arguments with respect to claims 1 and 8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) JP 9-222607 discloses the use of particles of an organic polymer having polar groups as the material for spacers in order to remove ionic impurities and suppress the deterioration of display characteristics of a liquid crystal display device.

Art Unit: 2871

b) JP 2-264926 discloses that by forming spacers of an ion exchange resin it is possible to prevent degradation in specific resistance by the intrusion of impurities during the process of production, crosstalks, flickers and jitters.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (703) 308-4115. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L Sikes can be reached on (703) 305-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

TRC
September 11, 2001



William L. Sikes
Supervisory Patent Examiner
Technology Center 2800